AUTHORS: Ponomarev, V. D., Tananayev, I. V.   SOV/75-13-4-6/29

TITLE: Investigation of the Formation Reaction of Mixed Ferrocy-
               anides of Copper and Alkali Metals by a Potentiometric Method
               (Izucheniye reaktsii obrazovaniya smeshannykh ferrotsianidov
               medi i shchelochnykh metallov potentsiometricheskim metodom)

PERIODICAL: Zhurnal analiticheskoy khimii, 1958, Vol. 13, Nr 4, pp. 417-
               422 (USSR)

ABSTRACT: The potentiometric titration of ferrocyanides, which nowadays
               is applied with varying success in the determination of a whole
               series of metals (Ref 1), has one shortcoming. The position of
               the end point frequently is dependent on the kind of the alkali
               metal which forms the cation of the ferrocyanide and also on
               the concentration of alkali metals in the solution. Knowledge
               of the mechanism of the formation reaction of an insoluble
               mixed ferrocyanide would disclose new possibilities of the
               analytical application of ferrocyanides. For this purpose it
               is indispensable to investigate the relation between the com-
               position of the mixed ferrocyanides and the presence of one or
               the other alkali metal in the solution, and its concentration.
Card 1/3   The present paper deals with potentiometric titration of copper

Investigation of the Formation Reaction of Mixed Ferrocyanides of Copper and
Alkali Metals by a Potentiometric Method

ions by $\left[Fe(CN)_6\right]^{4-}$. Despite a series of published articles on
this problem (Refs 3, 4), no satisfactory potentiometric
method of titrating copper by ferrocyanides has hitherto been
known. In all of these investigations it is titrated by
$K_4\left[Fe(CN)_6\right]$, however, the possible influence of other alkali
metals being present on the titration was not investigated. In
some of the papers reference is made to the lowered solubility
of the mixed ferrocyanides of copper in dependence on the ion
radius of the alkali metal which is contained in the correspond-
ing sediment (Refs 5-7). The authors of the present paper in-
vestigated the system consisting of the ions Cu^{2+} and
$Me_4\left[Fe(CN)_6\right]$ (Me = Li, Na, K, Rb, Cs). The redox-potentials
were determined on a potentiometer of the type ЛП-6. It was
found that common $Cu_2\left[Fe(CN)_6\right]$ is produced in the titration by
ferrocyanides of lithium and sodium. In presence of ions of the
remaining alkali metals, however, mixed ferrocyanides develop:

Card 2/3 $K_4Cu_{10}\left[Fe(CN)_6\right]_6$, $Rb_4Cu_4\left[Fe(CN)_6\right]_3$, and $Cs_2Cu\left[Fe(CN)_6\right]$. Among

SOV/75-13-4-6/29

Investigation of the Formation Reaction of Mixed Ferrocyanides of Copper and Alkali Metals by a Potentiometric Method

the potentiometric methods of titrating copper the titration by rubidium ferrocyanide or by the ferrocyanides of the other alkali metals in presence of rubidium salts is the most suitable one. The way of carrying out the investigations based on redox-potentials is described in detail. There are 3 figures, 3 tables, and 8 references, 6 of which are Soviet.

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering Physics Institute)

SUBMITTED: May 29, 1957

1. Titration—Materials   2. Iron cyanide—Chemical reactions
3. Copper—Chemical reactions   4. Alkali metals—Chemical reactions   5. Metals—Determination

Card 3/3

AKHMETOV, K.; BAYANOV, S.Z.; PONOMAREV, V.D.

Complete utilization of mineral raw materials is the most
important means of increasing the production of nonferrous metals.
Vest. AN Kazakh. SSR 14 no.11:10-18 N '58.   (MIRA 11:12)
                    (Mineral industries)

PONOMAREV, V.D.; SAZHIN, V.S.

Decomposition of nephelines by alkaline solutions. Zhur. prikl.
khim. 31 no.8:1143-1149 Ag '58.   (MIRA 11:10)

1.Kazakhskiy gorno-metallurgicheskiy institut.
                    (Nepheline) (Alkalies)

PONOMAREV, V.D.

P. 2

18(5,6,3)   PHASE I BOOK EXPLOITATION   SOV/2094

Akademiya nauk Kazakhskoy SSR.   Institut metallurgii i
    obogashcheniya

Trudy, t. 1 (Transactions of the Institute of Metallurgy and
    Ore Dressing, Kazakh SSR Academy of Sciences, Vol 1)
    Alma-Ata, Izd-vo AN Kazakhskoy SSR, 1959. 159 p. 1,225
    copies printed.

Ed.: Yu. N. Kuznetsov; Tech. Ed.: Z.P. Rorokina;
    Editorial Board: V.D. Ponomarev (Resp. Ed.), B.N. Lebedev,
    A.N. Grigorovich, L.P. Ni, R.A. Isokova, I.R. Polyvyannyy
    (Resp. Secretary), and Ye. I. Ponomareva.

PURPOSE: This book is intended for metallurgists and
    metallurgical engineers.

COVERAGE: This is a collection of articles dealing with various
    aspects of process metallurgy, principally nonferrous, and
    with related matters such as treatment of ore concentrates,

Card 1/5

Transactions of the Institute (Cont.)   SOV/2094

properties of slags, etc. Topics discussed include pre-cipitation of copper from slags, extraction of arsenic from speiss, recovery of rare metals from smelting dust, electrolytic precipitation of lead and zinc, and drying of lead-zinc concentrates. Three articles are concerned with the metal, rhenium. The articles are accompanied by Soviet and non-Soviet references.

TABLE OF CONTENTS:

Card 2/5

Transactions of the Institute (Cont.)   SOV/2094

Card 3/5

Transactions of the Institute (Cont.)   SOV/2094

Card 4/5

Transactions of the Institute (Cont.)   SOV/2094

Suvorova, O.A., and F.G. Karinskaya. Determination of
Rhenium in Molybdenites and Ore Tailings   142

Suvorova, O.A., and S.V. Fedorova. Analysis of
Electrolytic Rhenium and Freeing It From Volatile
Impurities   152

AVAILABLE: Library of Congress

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Card 5/5

PONOMAREV, V.D.; GIGAROV, G.P.

Separation of tantalum and niobium by liquid extraction. Izv.
AN Kazakh.SSR.Ser.met.obog.i ogneup. no.1:3-15 '59.
(MIRA 13:4)

(Tantalum) (Niobium)

NI, L.P.; POMOMAREV, V.D.

Extracting alumina from slag by the alkaline hydrochemical method. Izv.AN Kazakh.SSR.Ser.met.obog.i ogneup. no.1:
16-20 '59.   (MIRA 13:4)
                (Alumina) (Leaching)

KOLOMITSKIY, F.M.; PONOMAREV, V.D.

Electrical conductivity of melts in the potassium fluotitanate -
sodium chloride systems.   Izv.AN Kazakh.SSR.Ser.met.obog.i
ogneup. no.1:21-33 '59.   (MIRA 13:4)
        (Potassium fluotitanate) (Sodium chloride)
                 (Electric conductivity)

RUBAN, N.N.; PONOMAREV, V.D.

Iron oxide reduction in sulfuric acid solutions by sulfur dioxide and hydrogen sulfide. Trudy Inst.met. i obogoshch.
1:31-36 '59.   (MIRA 12:5)
(Reduction, Chemical)   (Iron oxides)   (Sulfuric acid)

RODYAKIN, V.V.; PONOMAREV, V.D.

Electrode processes in the electrolytic preparation of lead-calcium alloys. Izv.AN Kazakh.SSR.Ser.met.obog.i ogneup.
no.1:40-55 '59.   (MIRA 13:4)
        (Lead alloys--Electrometallurgy)

ISAKOVA, R.A.; PONOMAREV, V.D.

Method of direct determination of dissociation pressure of
metal sulfides. Izv.AN Kazakh.SSR.Ser.met.obog.i ogneup.
no.1:65-70 '59.   (MIRA 13:4)
          (Sulfides--Metallurgy)

PONOMAREV, V.D.; MACHKASOV, Ye.I.

Investigating properties of lead and zinc sulfide concentrates
in relation to their drying in drum driers. Trudy Inst.met.i
obogoshch. 1:115-126 '59.   (MIRA 12:5)
        (Lead ores)   (Zinc ores)   (Ore dressing)

PONOMAREV, V.D.; MACHKASOV, Ye.I.

Investigating the process of drying lead and zinc sulfide
concentrates in drum driers. Trudy Inst.met. i obogoshch.
1:127-141 '59.
(MIRA 12:5)
(Ore dressing)   (Drying apparatus)

PONOMAREV, V.D.; KURMANGALIYEV, M.K.

Separation into distinct layers in the lead - antimony - zinc
system. Izv.vys.ucheb.zav.; tsvet.met. 2 no.1:50-55   '59.
(MIRA 12:5)

1. Kazakhskiy gornometallurgicheskiy institut. Kafedra metallurgii legkikh
i redkikh metallov.
(Lead-antimony-zinc alloys--Metallography)
(Melting points)

PONOMAREV, V.D.; KURMANGALIYEV, M.K.

Partial vapor pressure of components in antimony - zinc,
lead-antimony-zinc systems. Izv. vys. ucheb. zav.; tsvet.
met. 2 no.2:35-38 '59.   (MIRA 12:7)

1.Kazakhskiy gornometallurgicheskiy institut, Kafedra legkikh i
redikh metallov.
          (Antimony-zinc alloys--Metallurgy)
          (Lead-antimony-zinc alloys--Metallurgy)
          (Activity coefficients)

18 (5)

AUTHORS: Ponomarev, V. D., Sazhin, V. S.   SOV/163-59-2-12/48

TITLE: Processing   Blast-furnace Slags for Alumina (Pererabotka
                domennykh shlakov na glinozem)

ABSTRACT: The production of alumina from blast-furnace slag with high
                aluminum content by the hydrochemical treatment in an autoclave
                with alkali solution was investigated. The alumina is solved
                by the alkaline treatment, whereas calcium- and sodium
                silicate - $Na_2O.2CaO.2SiO_2.2H_2O$ remain. The aluminate
                solution is subjected to the crystallization process by which
                solid sodium aluminate is produced. The solid sodium aluminate
                is solved in water and aluminum hydroxide is precipitated by
                decomposition with acid and then transformed into aluminum
                oxide by an annealing process. The slag has the composition
                Al_2O_3 - 28.5 %, SiO_2 - 32.2 %, CaO - 34.2 %, FeO - 0.39 %,
                Cr - 0.1 %, S - 0.45 % and TiO_2 - 0.7 %. 85-86 % alumina

Card 1/2   was obtained from the slag in a laboratory autoclave. The

Processing of Blast-furnace Slags   Alumina   SOV/163-59-2-12/48

regeneration of alkali solution was carried out by the
hydrolysis of the unstable compound $Na_2O.2CaO.2SiO_2.2H_2O$.

A calculation was worked out for the production of one ton
alumina from blast-furnace slag and offered in a table.
There are 2 Soviet references.

ASSOCIATION: Kazakhskiy gorno-metallurgicheskiy institut (Kazakh
                Mining-metallurgical Institute)

SUBMITTED: June 16, 1958

Card 2/2

18(5)

AUTHORS:

Vladimirov, V.P. and Ponomarev, V.D.

TITLE:

Heat Content and Smelting Temperatures of Slags of the SiO_2-FeO-CaO System (Teplosoderzhaniye i temperatury plavleniya shlakov sistemy SiO_2-FeO-CaO)

PERIODICAL:

ABSTRACT:

This is a report on an experiment carried out to establish the smelting conditions and the heat content of slags of the triple system SiO_2-FeO-CaO. The slags of non-ferrous metallurgy are mostly lime and iron containing silicates. Generally, the total output of the system SiO_2-FeO-CaO represents 80 - 90% of the weight of the materials to be smelted. It is obvious, therefore, that the qualities of this system determine to a considerable degree the slag qualities of non-ferrous metallurgy. In order to prepare slags of the system SiO_2-FeO-CaO, the authors used the following materials: a synthetically pre-

Card 1/4

Heat Content and Smelting Temperatures of Slags of the SiO_2-FeO-CaO
System

pared silicate containing 66.8% FeO, 6% Fe_2O_3, 1.0%
Fe_{met} and 26.16% SiO_2, a purified rock crystal
(99.95% SiO_2) and chemically pure calcium oxide.
These materials mixed at an established ratio were
molten in a Tammann furnace at a temperature of
$1,300^\circ$ C. Roasting of the slags at a temperature
of 950° permitted elimination of the cooling require-
ments, made on the degree of crystallization of the
materials. It was possible to avoid thereby dropping
the heat content magnitudes. The special method
used in this case made it possible to characterize
the process under its quantitative and qualitative
aspects. The heat content of the slags was determined
within a temperature interval of $200 - 1,250^\circ$. The
roasting of the slags and the experiments were carried
out in an argon atmosphere. Altogether, 40 synthetic
slags were examined. The results of the investigation
were the following: 1) The output of SiO_2-FeO-CaO
slags smelted at temperatures up to 1250°C varies
within the limits: SiO_2- 30-60%, FeO 15-60%, CaO

Card 2/4   8-30%; 2) the heat content of the slags below the

SOV/31-59-2-12/17

Heat Content and Smelting Temperatures of Slags of the SiO_2-FeO-CaO
System

temperature of their first melting phase obeys the
law of additivity; 3) the heat content of the molten
slags changes at a temperature of 1,250° C from
340 to 400 cal/g, depending on their chemical com-
position; calcium oxide has the greatest influence
on increased heat content; 4) the initial and final
temperatures of the smelting process have been estab-
lished; isotherms connecting the full melting points
of the slag components have been plotted on a tri-
angular graph; 5) the possibility of using the
heat current method for a simultaneous determination
of the heat content, the initial and final smelting
temperatures and also the melting heat of the sub-
stances, shows its advantage over other methods;
6) the obtained graphs (heat content and viscosity)
permit singling out a section of the triangle, where
the slags have a comparatively low melting temper-
ature (1,000 - 1,150°) and a respectively low heat
content (340-380 cal/g); the output of these slags

Card 3/4

Heat Content and Smelting Temperatures of Slags of the SiO_2-FeO-CaO System

SOV/31-59-2-12/17

varies within the following limits: SiO_2 - 35-53%, FeO - 30-55%, CaO - 7-25%; 7) the results obtained with regard to the **fusibility** and heat content of slags of the triple system permit selection of the most suitable slag composition under production conditions. In the article the following scientists are mentioned: Kh.K. Avetisyan, Professor I.M. Rafalovich, B.P. Selivanov. There are 6 graphs and 5 Soviet references.

Card 4/4

5.4600

AUTHORS: Ponomarev, V. D., Zuyev, B. N.

TITLE: Electrolysis of Lead and Zinc in Alkaline Solutions

ABSTRACT: Lead and zinc are normally deposited from alkaline solutions in the form of sponge which needs remelting. Moreover, lead is not only deposited on the cathode as Pb^{2+} but also on the anode as PbO_2^{2-}. The authors propose a conversion of the plumbate into lead glycerate by heating the electrolyte with glycerine. The advantage of glycerates consists in the fact that a solid lead deposit is formed on the cathode. The optimal current density is 200 to 300 a/m^2. Some formaldehyde resin must be added to the electrolyte. The distance between electrodes is kept at 5 cm, the temperature at 60°. No lead is deposited on the anode. The purity of electrolytic lead so obtained is 99.88%. Electric current consumption amounts to 1,600 kwhr per ton. After the electrolytic separation

Card 1/2

5.4600,18.3100

75390
SOV/149-2-5-16/32

AUTHORS: Kolomitskiy, F. M., Ponomarev, V. D.

TITLE: Concerning Electrolytic Production of Titanium From Dioxide
             in a Fused System K_2TiF_6-NaCl

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Tsvetnaya metal-
             lurgiya, 1959, Vol 2, Nr 5, pp 106-112 (USSR)

ABSTRACT: As the electrolytic production of titanium from water and
             other solutions failed, fused electrolytes were investi-
             gated. The use of titanium dioxide dissolved in an ap-
             propriate melt is very desirable; however, it presents
             many difficult problems of oxide elimination from the final
             product. Up to 10% titanium dioxide can be dissolved in
             a system containing 64% K_2TiF_6 and 36% NaCl (compared with
             a solubility up to 0.5% in $CaCl_2$ or to 1% in TiO). The
             melting point of such a system is 530°. Electrolysis was
             done in a stream of argon in a graphite pot, lining a re-
             fractory steel crucible, which constituted the anode. The
Card 1/3   cathode was a molybdenum or a tungsten rod (steel and nickel

Concerning Electrolytic Production of Titanium   75390
from Dioxide in a Fused System K_2TiF_6-NaCl   SOV/149-2-5-16/32

rods were also used), d = 3 mm. Cathode-anode distance
was 4 cm at the side, while it varied from 1.5 to 4.5 cm
at the bottom. A rectified (selenium rectifier) 24-a cur-
rent was used. During the first $1\frac{1}{2}$ hr a voltage of 2 v
was maintained and the current kept down to 0.5—1.5 a
for elimination of water and impurities. After this stage,
the electrolysis of titanium was carried out. The current
density had a decisive influence on the results, but it
was very difficult to keep it at a uniform level owing to
variations in the cathode area caused by titanium dendrites
which entrain droplets of the electrolyte. The best results
were obtained at temperatures around 680°. Nevertheless,
the ratio of deposited metallic Ti to other deposition on
the cathode was only 1:30 or 1:50. The deposition consisted
of three layers: a dense interior layer of salts around
·the electrode, followed by a mixture of titanium crystals
with the electrolyte, and, finally, an outer layer which
was dense and consisted of a phase which was apparently a
mixture of titanium subfluoride and of titanium oxyfluoride
complexes, as is shown by X-ray spectra. The above demon-
·strates the practical possibility of producing metallic
titanium by electrolysis at temperatures around 700°. The
Card 2/3   back emf in a bath free of TiO_2 is 2.8 to 3 v. On the

Concerning Electrolytic Production of Titanium   75390
from Dioxide in a Fused System K_2TiF_6-NaCl   SOV/149-2-5-16/32

addition of 2.5 to 5% TiO_2, it drops to 1.7 to 1.9 v.

Thus titanium dioxide permits a saving of power as compared with a bath of fluorotitanate alone. The fused electrolyte consisting of the eutectic 60 to 64% K_2TiF_6 and 40 to 36% NaCl is most promising for a further study of TiO_2 electrolysis. There are 3 figures; 1 table; and 2 Soviet references.

ASSOCIATION: Kazakh Mining Metallurgical Institute. Chair of light and Rare Metal Metallurgy (Kazakhskiy gornometallicheskiy institut. Kafedra metallurgii legkikh i redkikh metallov)

SUBMITTED: November 14, 1958

Card 3/3

PONOMAREV, V.D.; BUKETOV, Ye.A.; KONONENKO, G.A.

The recovery of selenium from spent sludge in the manu-
facture of sulfuric acid. Izv.vys.ucheb.zav.; tsvet.met. 2
no.6:85-92 '59.   (MIRA 13:4)

1. Kazakhskiy gornometallurgicheskiy institut. Kafedra
metallurgii legkikh i redkikh metallov.
          (Selenium) (Sulfuric acid industry—By-products)

VLADIMIROV, V.P.; PONOMAREV, V.D.

Some thermal data on the system SiO_2--FeO--CaO. Vest. AN Kazakh.
SSR 15 no.4:73-77 Ap '59.   (MIRA 12:7)
    (Slag)   (Manganese oxide)   (Vanadium oxide)

81799
8/137/60/000/04/01/015

_15.2130_

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 4, p. 36,
7085

AUTHORS: Ponomarev, V.D., Buketov, Ye.A.

TITLE: On Some Properties of Thiomolybdate Solutions

PERIODICAL: Sb. nauchn. tr. Kazakhsk, gornometallurg. in-ta, Moscow, 1959, No. 16, pp. 369 - 376

TEXT: It was established that when dissolving MoO_3 in an aqueous solution of Na_2S at a molecular ratio of MoO_3: Na_2S = 1, a dark-red solution was formed. If this solution is processed with alcohol, a deposit is precipitated which is similar to the Na_2MoO_3S compound with respect to several chemical properties. The precipitate is highly hygroscopic and in the aqueous solution it has a yellow color (which turns to red at a higher concentration). It produces a green solution with CH_3COOH and a bright-blue solution with H_2SO_4 and HCl. When $BaCl_2$, $ZnSO_4$ and $CuSO_4$ solutions are added, the precipitate is yellow, yellowish-white and yellowish-green. The index of refraction is located between 1.609 and 1.612. The microscopic investigation of the crystals indicates

Card 1/2

PONOMAREV, V.D.

New methods for processing bauxites. Trudy Inst.geol.nauk
AN Kazakh.SSR no.2:160-170 '59.   (MIRA 13:4)
    (Amangel'dy District--Bauxite) (Alumina)

NESTEROV, V.N.; PONOMAREV, V.D.

Pressure of zinc sulfide vapor at 1200 - 1400°. Izv.AN Kazakh.
SSR.Ser.met.obog.i ogneup, no.1:80-84 '59.
(MIRA 13:4)
(Sulfides--Metallurgy) (Zinc--Metallurgy)

S/137/60/000/012/003/041
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 12, p. 77,
28600

AUTHORS: Ponomarev, V.D., Giganov, G.P.

TITLE: Separation of Tantalum and Niobium by Liquid Extraction

PERIODICAL: Izv. AN KazSSR Ser. metallurgii, obogashcheniya i ogneuporov, 1959,
              No. 1 (4), pp. 3 - 15 (Kaz. summary)

TEXT: Laboratory investigations were made on extraction of Ta and Nb
from a mineral acid mixture by tributylphosphate. It was established that Nb is
more completely extracted into the organic phase at a concentration of HF 4 - 6
n. and H_2SO_4 6 - 10 n. in the initial solution. At a Nb_2O_5 content in the ini-
tial solution as high as 30 - 35 g/l its extraction into the organic phase is
98%. Separation of Ta and Nb, if they are jointly present in the solution, can
be performed by two ways: 1) in the absence of H_2SO_4 in the solution containing
HF 0.5 - 2 n., mainly Ta is transferred into the organic phase, whereas Nb re-

Card 1/2

S/137/60/000/012/003/041
A006/A001

Separation of Tantalum and Niobium by Liquid Extraction

mains in the aqueous phase; 2) from the initial solution containing 6 n. HF and 8 n. H_2SO_4, Ta and Nb are jointly transferred into the organic phase, and Nb is then selectively washed out of the organic phase with 0.5 n. HF or pure water.

G.S.

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

20019

1687 1043 1273

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S/081/61/000/002/004/023
A005/A105

Translation from: Referativnyy zhurnal, Khimiya, 1961, No. 2, p. 308, # 2K10

AUTHORS: Ponomarev, V.D., Giganov, G.P.

TITLE: The Separation of Tantalum and Niobium by Liquid Extraction

PERIODICAL: "Izv. AN KazSSR, Ser. metallurgii, obogashcheniya i ogneuporov",
              1959, No. 1 (4), pp. 3-15 (Kazakh. summary)

TEXT: The authors studied the behavior of Nb and Ta in the system HF-
H_2SO_4-$(C_4H_9)_3PO_4$. It is established that Nb is most totally extracted into the
organic phase at a concentration in the initial solution: HF (acid) 4-6 n. and
H_2SO_4 6-10 n. For a concentration of Nb_2O_3 in the initial solution of 30-35 g/l,
its extraction into the organic phase amounts to 98%. In the absence of H_2SO_4, a
sufficiently high extraction of Ta into the organic phase is only attained from
solutions of 0.5 - 2 n. HF. If the concentration of sulfuric acid in the initial
solution is $\ge$ 4 n., the extraction of Ta into the organic phase approximates to
100% at an arbitrary content of HF (acid) and concentration of Ta_2O_5 of 150 g/l.
The extraction of Ta and Nb is produced by $(C_4H_9)_3PO_4$ from the fluoride solution

Card 1/2

18.3100

77723
SOV/149-60-1-12/27

AUTHORS: Silina, Yu. K., Ponomarev, V. D.

TITLE: Lead Corner in the Ternary System Pb-Bi-Mg Equilibrium
              Diagram

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Tsvetnaya metal-
              lurgiya, 1960, Nr 1, pp 91-96 (USSR)

ABSTRACT: Bismuth is eliminated from lead by the combined action
              of calcium and magnesium, each of the latter unable to
              achieve this aim alone. A study of the ternary equili-
              brium diagram of the Pb-Mg-Bi system is of great import-
              ance, yet data on this subject are scant and contradic-
              tory. This article deals with the lead corner of this
              ternary system, and covers three cross sections of Pb-
              10% Bi-10% Mg triangle. In the cross section Pb-I and
              Pb-II, the Bi/Mg ratio is constant, 1:3 and 1:1, re-
              spectively. Cross section Pb-Mg$_3$Bi$_2$ is pseudobinary with

Card 1/8   a Bi:Mg ratio of about 5:1. Figures 1, 2, and 3 show

Lead Corner in the Ternary System
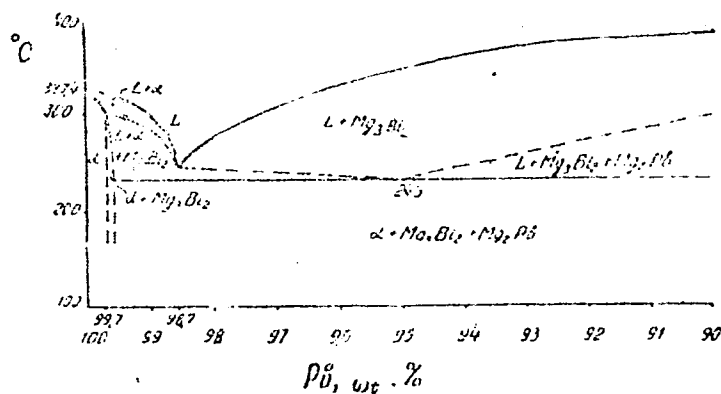Pb-Bi-Mg Equilibrium Diagram

77723
SOV/149-60-1-12/27

three radial cross sections Pb-I, Pb-II, and Pb-Mg_3Bi_2.

In Figures 1 and 2 two areas of primary crystallization are crossed: that of   -solution (solid solution on lead base) and of chemical compound Mg_3Bi_2, which are limited by two liquidus lines. The solidus comprises two curves corresponding to the end of primary crystallization   and binary eutectic   + Mg_3Bi_2 and the straight line of ternary eutectic   + Mg_3Bi_2 + Mg_2Pb (at 246°). Figure 3 shows two branches of primary crystallization: that of solid solution and of chemical compound Mg_3Bi_2. The solidus is represented by a horizontal straight line corresponding to the end of crystallization of binary eutectic   + Mg_3Bi_2 at 294°

Figure 4 shows the lead corner of this system plotted according to thermal microscopic and radiographic analyses. It is assumed that solubility does not

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Lead Corner in the Ternary System   77723
Pb-Bi-Mg Equilibrium Diagram   SOV/149-60-1-12/27

Fig. 1. Polythermal radial cross section Pb-I at con-
stant ratio Bi:Mg = 1:3.

Card 3/8

Lead Corner in the Ternary System
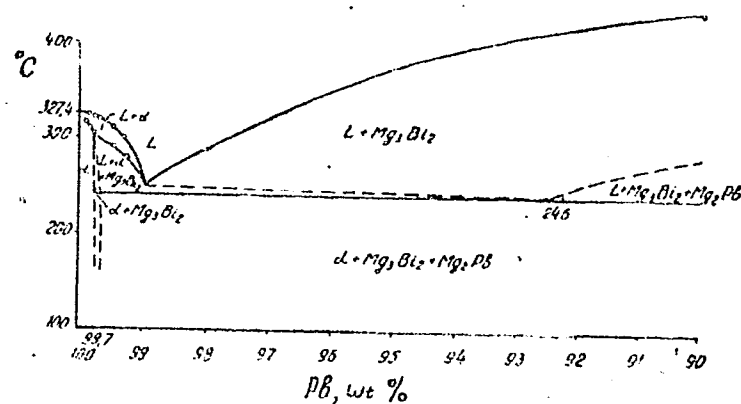Pb-Bi-Mg Equilibrium Diagram

Fig. 2. Polythermal radial cross section Pb-II at
constant ratio Bi:Mg = 1:1.

Card 4/8

Lead Corner in the Ternary System   77723
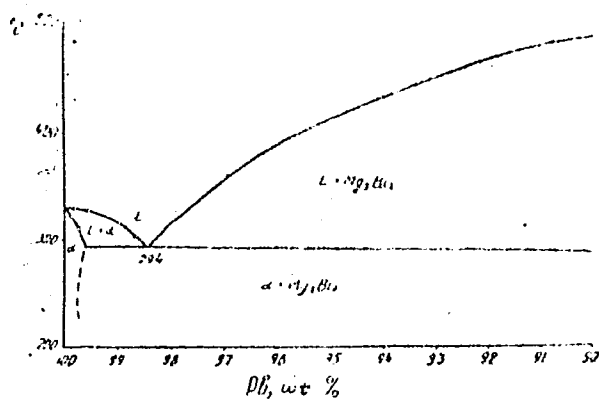Pb-Bi-Mg Equilibrium Diagram   SOV/149-60-1-12/27

Fig . 3. Quasibinary cross section Pb - Mg_3Bi_2 at
at constant ratio Bi:Mg ≈ 5:1.

Card 5/8

Lead Corner in the Ternary System   77723
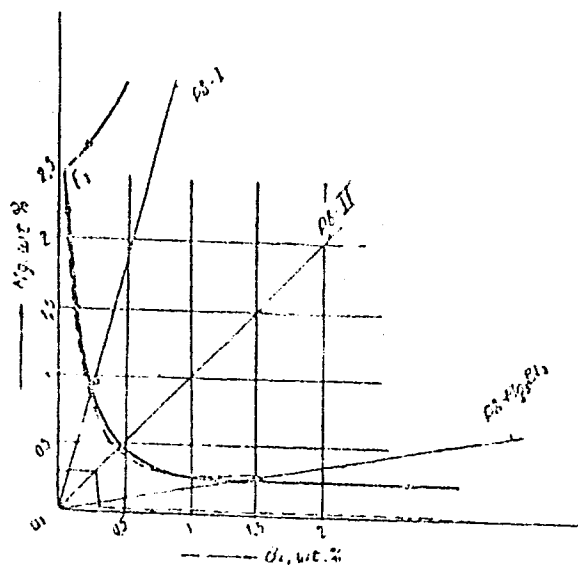Pb-Bi-Mg Equilibrium Diagram   SOV/149-60-1-12/27

change with temperature. The dotted line indicates the
solubility, and is taken from Fig. 1, and 2. It applies
to cast, nonannealed alloys, as used in practice.
Microhardness of α-solution increases with the Bi-Mg
content. Above saturation point (99.7 Pb) hardness
hardly changes. Radiograms showed that lattice para-
meter increased at a very small rate (hundredths and
thousandths of one per cent) with Bi-Mg content in-
crease, since the atomic diameters of elements compos-
ing the alloys are very close to each other. The
phase which crystallizes at 327° while retaining the
lead lattice is a ternary solution of Bi and Mg in Pb.
In their conclusions the authors note that the above
data coincide with the few available in literature.
There are 7 figures; and 6 references, 3 Soviet, 1
German, 2 U.S. The U.S. references are: I. O. Better-
ton, I. Lebedeff, Trans. AIME 121, 205 (1936); T. R. A.
Davey, J. Metals, Nr 3, 341-950 (1956).

Card 6/8

Lead Corner in the Ternary System
Pb-Bi-Mg Equilibrium Diagram

77785
SOV/149-60-1-12/27

Fig. 4. Lead corner
of Pb-Mg-Bi system.

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Lead Corner in the Ternary System
Pb-Bi-Mg Equilibrium Diagram

77723
SOV/149-60-1-12/27

ASSOCIATION: Kazakh Mining Metallurgical Institute. Chair of
General Metallurgy and Metallurgical Furnaces (Kazakh-
skiy gornometallurgicheskiy institut. Kafedra obshchey
metallurgi i metalurgicheskikh pechey)

SUBMITTED: October 10, 1959

Card 8/8

PONOMAREV, V.D.; SALIBAYEV, T.O.

Behavior of iron oxides in the leaching of roasted zinc concentrates.
Trudy Inst.met.. i obogashch. AN Kazakh.SSR 2:7-15 '60.

(MIRA 13:10)

(Ore dressing)   (Iron oxides)   (Zinc)

PONOMAREV, V.D.; SALIBAYEV, T.O.

Experimental investigation of the equation on the dissolution pepti-
zation-coagulation in the system iron oxide - sulfuric acid - water.
Trudy Inst. met. i obogashch. AN Kazakh. SSR 2:16-19 '60.

(MIRA 13:10)

(Chemistry, Metallurgic)   (Iron oxides)

PONOMAREV, V.D.; YERDENBAYEVA, M.I.

Interaction between iron hydroxide and sodium sulfide solutions under pressures of 12-15 at. Trudy Inst. met. i obogashch. AN Kazakh. SSR 2:20-23 '60.   (MIRA 13:10)
            (Chemistry, Metallurgic)   (Iron oxides)

PONOMAREV, V.D.; YERDENBAYEVA, M.I.

Thickening and washing of black and red muds obtained after leaching
alumina of diaspore-boehmite bauxites under pressure of 15 at.
Trudy Inst. met. i obogashch. AN Kazakh. SSR 2:24-31 '60.

(MIRA 13:10)

(Bauxite)   (Ore dressing)

POLYVYANNYY, I.R.; PONOMAREV, V.D.

Sodium sulfate method of treating lead concentrates. Report no.1. Izv.AN Kazakh.SSR.Ser.met.obog.i ogneup. no.2: 50-64 '60.   (MIRA 13:8)
            (Lead—Metallurgy) (Sodium sulfate)

PONOMAREV, V.D.

Research by the Alma Ata Alumina Group during the last 20 years.
Trudy Inst. met. i obogashch. AN Kazakh. SSR 3:5-15 '60.
(MIRA 14:6)

(Alma Ata—Metallurgical Research)
(Alumina)

S/137/61/000/011/002/123
A060/A101

AUTHORS: Isakova, R. A., Ponomarev, V. D.

TITLE: Vapor pressure and dissociation pressure of the rhenium sulfides

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 11, 1961, 3-4, abstract
             11A26 ("Izv. AN KazSSR Ser. metallurgii, obogashcheniya i ogneou-
             porov", 1960, no. 3 (9), 10-17, Kazakh. summary)

TEXT: The authors cite the results of the experimental determination of
the dissociation pressure of rhenium heptasulfide, as well as the vapor pressure
and the dissociation pressure of Re disulfide. The investigation was carried out
by two methods: in the interval 250 - 345°C by the transport method, and in the
interval 340 - 410°C - by the static method. The quantity of elemental sulfur
condensed out was determined by two methods: by the sulfite method and by
burning off in a dry air atmosphere with subsequent absorption of the sulfur by
water and titration with an iodine solution, and that of the sulfurous anhydride
- with an alkali solution. A diagram of the apparatus for the determination of
dissociation pressure of Re heptasulfide by the transport method is given. The
data obtained by this method are cited. The dissociation pressure of Re hepta-

Card 1/2

SALTOVSKAYA, L.A.; KHAN, O.A.; PONOMAREV, V.D.

Electrolytic recovery of lead from chloride solutions. Izv. AN
Kazakh.SSR.Ser. met. obog. i ogneup. no.3:17-26 '60. (MIRA 14:4)
(Lead—Electrometallurgy)

MARGULIS, Ye.V.; PONOMAREV, V.D.

Chemism of zinc sulfide oxidation.   Izv. AN Kazakh.SSR. Ser. met.
obog. i ogneup. no.3:27-35 '60.   (MIRA 14:4)
              (Zinc--Metallurgy)   (Chemistry, Metallurgic)

MARGULIS, Ye.V.; PONOMAREV, V.D.

Chemism of lead sulfide oxidation.   Izv. AN Kazakh.SSR. Ser. met.
obog. i ogneup. no.3:36-51 '60.   (MIRA 14:4)
        (Lead--Metallurgy)   (Chemistry, Metallurgic)

POLYVYANNYY, I.R.; DEMCHENKO, R.S.; PONOMAREV, V.D.

Sodium sulfate method of treating lead concentrates. Izv. AN
Kazakh.SSR. Ser. met. obog. i ogneup. no.3:52-63 '60. (MIRA 14:4)
(Lead—Metallurgy)   (Sodium sulfate)

NESTEROV, V.N.; PONOMAREV, V.D.

'Vapor pressure and the activity of zinc sulfide in the system ZnS -
CuS at 1200-1400°. Izv. AN Kazakh.SSR. Ser. met. obog. i ogneup.
no.3:64-72 '60.   (MIRA 14:4)
        (Vapor pressure)   (Zinc-copper alloys--Metallurgy)

GIGANOV, G.P.; PONOMAREV, V.D.; KHAN, O.A.

Composition of niobium and tantalum complexes extracted by means
of 3-butylphosphate. Izv. AN Kazakh.SSR. Ser. met. obog. i ogneup.
no.3:73-78 '60.   '(MIRA 14:4)
          (Niobium compounds)   (Tantalum compounds)
                    (Chemistry, Metallurgic)

SALTOVSKAYA, L.A.; PONOMAREV, V.D.; KHAN, O.A.

Separation of copper and lead from chloride solutions by the
cementation method. Trudy Alt. GMNII AN Kazakh SSR 9:221-226
'60. (MIRA 14:6)

1.Altayskiy gornometallurgicheskiy nauchno-issledovatel'skiy
institut AN Kazakhskoy SSR (for Saltovskaya, Khan).
2. Institut metallurgii i obogashcheniya AN KazSSR (for Ponomarev).
(Hydrometallurgy)   (Cementation (Metallurgy))

AUTHORS: Giganov, G.P., Ponomarev, V.D., Khan, O.A.

TITLE: On the Composition of Niobium and Tantalum Complexes Extracted
            With 3-Butylphosphate

TEXT: The authors describe a graphical method of determining the compo-
sition of Ta and Nb complexes extracted from a mixture of H_2SO_4 and HF acids
with the aid of tributylphosphate. An investigation of the distribution coef-
ficient of each of the metals and acids depending on the amount of tributylphos-
phate in the organic phase (kerosene) has shown that the acids are extracted in
the form of complexes: H_2SO_4 . tributylphosphate and HF . tributylphosphate.
Ta apparently forms a dissolvate H_2TaF_7 . 2-tributylphosphate, and Nb a complex
H_2NbF_7 . tributylphosphate. Highest distribution coefficients are obtained for

Card 1/2

S/137/61/000/001/003/043
A006/A001

On the Composition of Niobium and Tantalum Complexes Extracted With 3-Butylphosphate

Ta in the presence of H_2SO_4 in the initial solution and minimum HF concentration; for Nb in the presence of H_2SO_4 and HF concentration $> 7\%$. At a low HF concentration niobium is present in the solution in the form of a non-extractable complex $H_2NbOF_5 \cdot H_2O$.

M. L.

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

18.5.4600
18.3100

80832
S/149/60/000/03/02/009

AUTHORS: Ponomarev, V.D., Putilin, Yu.M.

TITLE: Some Physical and Chemical Properties of Melts of the K_2TiF_6 - NaCl - TiO_2 System

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, 1960, No 3, pp 78 - 80

TEXT: The authors carried out detailed investigations into some physical and chemical properties of melts of the K_2TiF_6 - NaCl - TiO_2 system within the zone adjacent to eutectics of the binary K_2TiF_6 - NaCl system, and studied the behavior of titanium potassium fluoride in various media at different temperatures. Some physical and chemical properties of titanium potassium fluoride have been described in (Ref 2). The present article deals with the electroconductivity and density of the system of K_2TiF_6 - NaCl - TiO_2 melts. The electric conductivity was investigated with the aid of the Kohlrausch method (Ref 3). The electric measuring circuit consisted of the MCP-49 (MSR-49) resistance box, MCP-47 (MSR-47) boxes, a cathode circuit volt-meter and a ЗГ-2A (ZG-2A) generator. The container for the determination of

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80832

S/149/60/000/03/02/009

Some Physical and Chemical Properties of Melts of the K_2TiF_6 - NaCl - TiO_2 System

electric resistance consisted of a palladium cell (Ref 4), submerged with the aid of a micrometer into the melt placed in a platinum crucible. Table 1 presents data on electric conductivity of the aforementioned melts depending on their composition and temperature. The density of the melts was determined by the method of hydrostatic weighing (Refs 3, 4) on analytical scales with the aid of a platinum float suspended on a thin platinum thread. The melt was placed in a platinum crucible. Table 2 contains data on the density of the melts. On the basis of data obtained the authors recommend for the electrolytical preparation of titanium the melts of the K_2TiF_6 - NaCl - TiO_2 system within the following composition range:

1)   96%   (75% K_2TiF_6;   25% NaCl)   - 4% TiO_2;

2)   94%   (75% K_2TiF_6;   25% NaCl)   - 6% TiO_2;

3)   96%   (50% K_2TiF_6;   50% NaCl)   - 4% TiO_2;

4)   94%   (50% K_2TiF_6;   50% NaCl)   - 6% TiO_2.

The temperature conditions of the process may fluctuate between 500° and $800^\circ C$

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80832

S/149/60/000/03/02/009

Some Physical and Chemical Properties of Melts of the K_2TiF_6 - NaCl - TiO_2 System

depending on the composition. Data on the determination of density indicate the possibility of developing an electrolyzer with emerging cathode allowing the maintenance of the constant cathode current density and reducing the reversible solubility of the metal obtained. The content of electrolyte in the titanium "pear" is also reduced, which is an important factor in the preparation of titanium. There are 2 tables and 5 references: 4 Soviet and 1 English.

ASSOCIATION: Kazakhskiy gornometallurgicheskiy institut (Kazakhskiy Institute of Mining Metallurgy), Kafedra metallurgii legkikh i redkikh metallov (Chair of Metallurgy of Light and Rare Metals)

SUBMITTED: June 9, 1959

Card 3/3

PONOMAREV, V.D.; SLUTSKIY, I.Z.; NURMAGAMBETOV, Kh.N.; BUKHMAN, S.V.;
    KOLOMITSKIY, F.M.; SHEYENKO, P.I.; PUTILIN, Yu.M.; Prinimal
    uchastiye: KONONENKO, G.A., starshiy laborant.

Thermal and electric balance of eight electrolytic cell types.
Izv. vys. ucheb. zav.; tsvet. met. 3 no.5:79-88 '60.
                                                    (MIRA 13:11)
        (Electrolysis--Equipment and supplies)

S/081/62/000/002/007/107
B149/B108

AUTHORS: Nesterov, V. N., Ponomarev, V. D.

TITLE: Vapor pressure of zinc sulfide in the system ZnS - FeS -
                  Cu_2S at 1200-1400°C

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 2, 1962, 55, abstract
                  2B387·(Izv. AN KazSSR. Ser. metallurgii, obogashcheniya i
                  ogneuporov, no. 3(9), 1960, 77-87)

TEXT: The vapor pressure of ZnS in the system ZnS - FeS - Cu_2S varies
from 3 mm Hg at 1200°C and a ZnS content of 9.6% by weight to
135.5 mm Hg at 1400°C and a ZnS content near 100%. ZnS vapor pressure
graphs constructed for pseudobinary melts corresponding to sections of the
concentration triangle from the ZnS apex to the FeS - Cu_2S side permitted
the construction of an isobar and isotherm diagram for the equilibrium
vapor pressure of zinc sulfide in the ZnS - FeS - Cu_2S system. The areas
of crystallization of zinc sulfide in the concentration triangle
ZnS - FeS - Cu_2S permit a more precise melting diagram of this system to
be obtained. [Abstracter's note: Complete translation.]
Card 1/1

5.5400

77740
SOV/75-15-1-2/29

AUTHORS: Ponomarev, V. D., Tananayev, I. V.

TITLE: Potentiometric Study of the Reaction of Mixed Alkali
             Metal and Uranyl Ferrocyanides

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol 15, Nr 1,
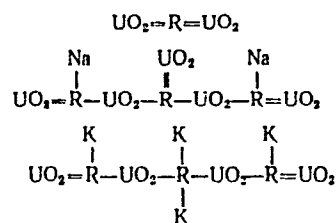   pp 10-15 (USSR)

ABSTRACT: Reaction of the System $UO_2^{2+} - M_4[Fe(CN)_6] - H_2O$, where
             M = Li, K, Na, Rb, and Cs, was studied by measuring the
             redox potentials. LP-5 potentiometer with platinum and
             saturated calomel electrodes was used. Approximately
             0.1-0.2 M solutions of M_4R, M_3R, and $UO_2(NO_3)_2$ were used.
             An aqueous solution (50 ml), containing 10 ml of uranyl
             nitrate and 0.3 ml of ferrocyanide was titrated potentio-
             metrically with K, Na, or Li ferrocyanides, in some cases
             in the presence of equimolar amounts of: RbCl or CsCl;
             KCl, RbCl, or CsCl; NaCl, KCl, RbCl, or CsCl. Results
             of the 12 titrations are shown in Fig. 1, 2, and 3.
             It was found that the character of the redox potential

Card 1/6

Potentiometric Study of the Reaction of   77740
Mixed Alkali Metal and Uranyl Ferrocyanides   SOV/75-15-1-2/29

curves and the position of the equivalent point
(infection) of the investigated system depend on the
alkali metal present in solution during titration.
In the presence of lithium ferrocyanide, a normal
uranyl cyanide, $(UO_2)_2[Fe(CN)_6]$, is formed. In the
presence of other alkali metals, mixed ferrocyanides
of the following general formula are formed: $n(UO_2)_2 \cdot$
$(n-1)M_4R$. It was suggested that the mixed ferrocyan-
ides be considered as polynuclear molecules of the
polymer type.

$$UO_2=R=UO_2$$

$$
\begin{array}{ccccc}
 & Na & & UO_2 & & Na \\
 & | & & | & & | \\
UO_2=R& - &UO_2 - R - UO_2 - R&=&UO_2 \\
\end{array}
$$

$$
\begin{array}{ccccc}
 & K & & K & & K \\
 & | & & | & & | \\
UO_2=R& - &UO_2 - R - UO_2 - R&=&UO_2 \\
 & & & | & & \\
 & & & K & & \\
\end{array}
$$

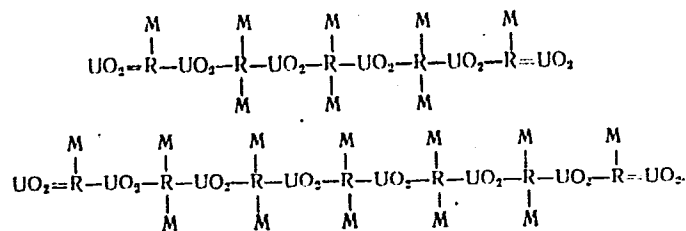Card 2/6

Potentiometric Study of the Reaction of
Mixed Alkali Metal and Uranyl Ferrocyanides

77740
SOV/75-15-1-2/29

$$UO_2=R-UO_2-R-UO_2-R-UO_2-R-UO_2-R=UO_2$$

with M substituents (three-row vertical bonds)

$$UO_2=R-UO_2-R-UO_2-R-UO_2-R-UO_2-R-UO_2-R=UO_2$$

with M substituents

(M is Rb or Cs)

Complexes containing large quantities of alkali metals
are formed in an excess of alkali metal ions. An excess
of chlorides of the alkali metals leads to the formation
of mixed uranyl ferrocyanides: $4(UO_2)_2[Fe(CN)_6] \cdot 3M_4$
$[Fe(CN)_6]$. There are 3 figures; and 10 references, 1
Indian, 9 Soviet.

ASSOCIATION: Moscow Institute of Physics and Engineering (Moskovskiy
inzhenerno-fizicheskiy institut)
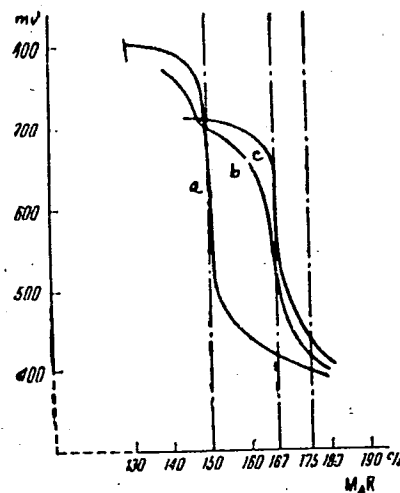
SUBMITTED: January 3, 1959

Card 3/6

Fig. 1. Change of redox potential on titrating $UO_2(NO_3)_2$ solution with: (a) K_4R; (b) $K_4R + RbCl$; (c) $K_4R + CsCl$.
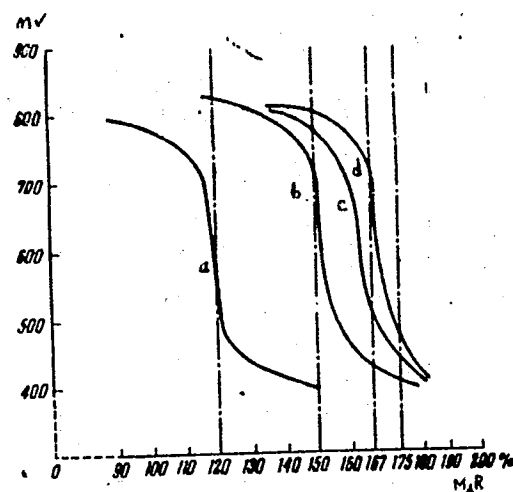
Card 4/6

77740, SOV/75-15-1-2/29

Fig. 2. Change of oxidation-reduction potential on titration of $UO_2(NO_3)_2$ solution with: (a) Na_4R; (b) $Na_4R + KCl$; (c) $Na_4R + RbCl$; (d) $Na_4R + CsCl$.

Card 5/6

SARSEMBAYEV, M.S.; PONOMAREV, V.D.

Studying certain physicochemical properties of tellurium
trioxide. Vest. AN Kazakh.SSR 16 no.8:69-78 Ag '60.
(MIRA 13:9)

(Tellurium oxide)

25172

5.2200

AUTHORS: Sarsembayev, M.S., Ponomarev, V. D.

TITLE: On the viscosity and electric conductivity of the soda solutions of sodium tellurate

PERIODICAL: Akademiya nauk SSR, Vestnik, no. 11, 1960, 67 - 71

TEXT: No data of the viscosity and conductivity of soda solutions of sodium tellurate exist in literature, and the described investigation had a practical purpose - to obtain data for the electrolysis of tellurium. The initial material for the preparation of the solution was tellurium trioxide produced from tellurium oxide by a previously described method (Ref. 1) (Ponomarev and Sarsembayev, "Vestnik AN KazSSR", 1960, No. 8, 69); the soda content in the solution was kept constant, 143 g per liter, at changing tellurium contents. The viscosimeter used in the experiments had been described in (Ref. 2) (Usanovich, M.I., Sumaro-kova, T. N., and Udovenko, T. N. "Zhurnal fizicheskoy khimii", 1939. 9, 1967) and in (Ref. 3) (Sumarokova and Litvyak. "Izvestiya sektora platiny ICNKh AN SSSR", 1952, v. 27, 127). The density of the electrolyte was measured by a pick-nometer graduated for water. The viscosity measurements were carried out at 20,

Card 1/5

On the viscosity and electric conductivity ... 25172

40 and 60°C, and the values for 30 and 50° obtained by calculations and curves. The viscosity of solutions differed considerably from the viscosity of water. Three curves are shown (Fig. 1) illustrating that the viscosity drops with rising temperature and the tellurium content in the solution has no effect. The formula used for calculations of viscosity is

$$\eta = \frac{\eta_B \cdot dp \cdot \mathcal{T}_p}{d_B \cdot \mathcal{T}_B}$$

where η is the viscosity of the solution; dp - the solution density; $\mathcal{T}_p$ - time of the solution running; η_B, d_B, $\mathcal{T}_B$ - the viscosity, density and running time of water at the same temperatures. The accuracy of measurements was within $\pm$ 0.0019. The calculated viscosity factor (L) at different temperatures is given (Table 3):

No. of solution	L (-10^2) at temperatures, in °C			
	20 - 30	30 - 40	40 - 50	50 - 60
1	3.53	2.67	1.95	1.10
2	3,30	2.59	1.91	1.05
3	3.02	2.44	1.87	1.03

Card 2/5

25172

On the viscosity and electric conductivity ...

· S/031/60/000/011/005/008
A161/A133

of ions drops with a rising viscosity, and the ratio of viscosity to conductivity at maximum dilution for aqueous and non-aqueous solutions at different temperatures is expressed by the formula $\eta \cdot A^n = \text{const}$ - where η = viscosity, A = equivalent conductivity, and n - a constant (Ref. 5). There are 2 figures, 6 tables and 6 Soviet-bloc references.

Figure 1:

The dependence of the viscosity of soda solutions of tellurate on the temperature (20 to 60°C); vertical legend: viscosity in centipoises.
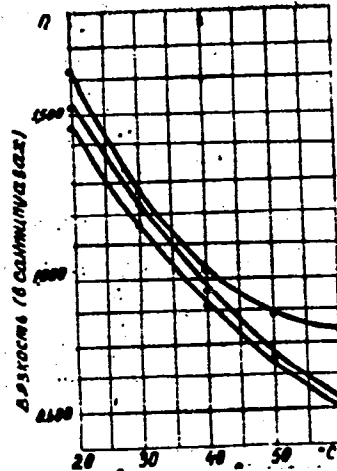
Card 4/5

69829
S/136/60/000/05/009/025
E071/E235

/8.3100

AUTHORS: Ponomarev, V. D., Ni, L. P., and Sazhin, V. S

TITLE: A Combined Method for the Complete Processing of High
             Silica and High Iron Bauxites Containing Titanium

PERIODICAL: Tsvetnyye metally, 1960, Nr 5, pp 44-48 (USSR)

ABSTRACT: A technological scheme for processing bauxites including
           a branch for processing red mud with a complete utilisa-
           tion of its components is proposed. In this scheme the
           extraction of iron from the red mud is done by reducing
           smelting in an electric furnace and the extraction of
           alumina and alkali from slags by hydrochemical leaching.
           The remaining residues enriched in titanium dioxide can
           be further utilised for the production of titanium. The
           scheme is shown in the figure. The main operations of
           the proposed scheme were verified on a laboratory scale,
           using hydroargillitic bauxites of the following
           composition, %: SiO_2 - 10.65, Al_2O_3 - 43.0, Fe_2O_3 - 17.35,
           TiO_2 - 2.45, CaO - 1.34, S - 0.4. The following main
           results were obtained. Optimum leaching conditions of
           bauxites: sodium oxide concentration in the return
           aluminate solution 200 to 240 g/litre; duration of

Card 1/3

69829

S/136/60/000/05/009/025
E071/E235

A Combined Method for the Complete Processing of High Silica and
High Iron Bauxites Containing Titanium

leaching 2 hours at 105°C. A stable extraction of alumina
equal to 76.5% (97% of the theoretically possible) is
obtained. Despite a low ratio of liquid to solid
(3:1 initially and 6:1 after leaching) the pulp possessed
a good fluidity and did not present any difficulty. The
settling of red mud was done with the addition of 0.2%
starch. The necessary settling area of the diluted pulp
2.42 m^2/t day, for various washing stages 5.0 to 6.5 m^2
t/day. This indicated that the treatment of bauxite with
high modulus return solutions does not present any diffi-
culties during leaching, settling and washing of red mud.
Smelting of the red mud (16.7% SiO_2, 34.8% Fe_2O_3, 19.15%
Al_2O_3, 6.35% TiO_2, 9.1% Na_2O) was done on a 1000 g sample
with 30 g of charcoal at 1550°C with a retention time of
20 minutes. The extraction of iron into pig iron – 96.8%,
silicon in pig 0.05 to 0.15%, the pig was alloyed with
vanadium, chromium and gallium. The composition of slag:
30.25% SiO_2, 38.4% Al_2O_3, 12.48% TiO_2, 1.5% Fe and 15%
Na_2O (equivalent to a transfer from the red mud of all
the alumina, 99.2% of titanium dioxide and 83.1 of alkali).

Card 2/3

PONOMAREV, V.D.

PHASE I BOOK EXPLOITATION   SOV/5483

Tsytovich, Nikolay Aleksandrovich, Innokentiy Nikolayevich Votyakov, and
Vsevolod Dmitriyevich Ponomarev

Metodicheskiye rekomendatsii po issledovaniyu osadok ottaivayushchikh gruntov
(Recommendations on Methods for Investigating Settlement of Thawing Ground)
Moscow, Izd-vo AN SSSR, 1961. 54 p. Errata slip inserted. 1,500 copies
printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut merzlotovedeniya im.
V. A. Obrucheva.

Resp. Ed.: N. A. Tsytovich, Corresponding Member, Academy of Sciences USSR;
Tech. Ed.: L. A. Lebedeva.

PURPOSE: This booklet is intended for personnel in the construction industry
and related occupations.

COVERAGE: According to the authors the booklet fills the gap in technical
literature on methods of field investigation of thawing-ground settlement.
The changes in the porosity coefficient of thawing grounds in relation to

Card 1/3

Recommendations on Methods (Cont.)   SOV/5483

external pressure, settlement of thawing ground and foundations, field in-
vestigation of thawing-ground settlement, and application of radioactive
isotopes to such investigations are examined. Operating instructions for
the GPP-4 gamma-density field meter are included, and measurement errors,
observations, test data, and safety technique are discussed. Formulas to
determine calculation coefficients are given. Ch. I.was written by N. A.
Tsytovich, and Ch. II by I. N. Votyakov, scientific worker in the North-
eastern Branch of the Institut merzlotovedeniya (Institute of Permafrost
Study). V. D. Ponomarev, scientific worker in the Department of Frozen-
Ground Mechanics of this institute, wrote Ch. III. There are 14 references,
all Soviet.

TABLE OF CONTENTS:

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PONOMAREV, V.D., otv.red.; NI, L.P., red.; RUBAN, N.N., red.;
SAZHIN, V.S., red.; SOLENKO, T.V., red.; ZHUKOVA, N.D., red.;
ROROKINA, Z.P., tekhn.red.

[Chemistry and technology of alumina; transactions] Khimiia i
tekhnologiia glinozema; trudy. Alma-Ata, Izd-vo Akad.nauk
Kazakhskoi SSR, 1961. 162 p.   (MIRA 15:5)

1. Vsesoyuznoye soveshchaniye po khimii i tekhnologii glinozema,
Alma-Ata, 1959. 2. Institut metallurgii i obogashcheniya AN Kazakh-
skoy SSR(for Ni). 3. Kazakhskiy politekhnicheskiy institut (for
Ponomarev, Sazhin).
                    (Alumina)

S/137/61/000/011/001/123
A060/A101

AUTHORS: Kim, G. V., Ponomarev, V. D., Abdeyev, M. A., Kvyatkovskiy, A. N.

TITLE: Determination of the thermodynamic characteristics of zinc in the zinc-lead system at low concentrations

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 11, 1961, 3, abstract 11A21 ("KazSSR Fylym Akad. khabarlary, Izv. AN KazSSR. Ser. metallurgii, obogashcheniya i ogneuporov", 1961, no. 1 (10), 20-25 (Kazakh. summary)

TEXT: The activity of Zn in Zn-Pb alloys was determined by the method of measuring the e.m.f. of concentration circuits of the type: $\overline{Zn}$, electrolyte, $Zn^{2+} \mid Zn + Pb^{+}$. A mixture of chlorides of K, Na, Li, and Zn was used as the electrolite. Alloys with Zn content: 0.01; 0.05; 0.1; 0.3; 0.5% were investigated. It was established that the activity isotherms (between 500 and 800°C) have a sharply expressed positive deviation from the law of ideal mixtures. The entropy of the mixture and the partial enthalpy remain without change between the limits of 500-800°C for one and the same alloy. They depend only upon the alloy composition. The formation of Zn-Pb alloys is accompanied by an endothermic

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Determination of the thermodynamic ...

S/137/61/000/011/001/123
A060/A101

effect. A linear dependence is demonstrated between the logarithm of partial
pressure of Zn vapor (in the Zn-Pb alloy) and the temperature. The positive
deviation from the law of ideal solutions and the slight endothermic effect of
the mixture favor the distillation separation of Pb-Zn alloys.

T. Kolesnikova

[Abstracter's note: Complete translation]

Card 2/2

S/137/61/000/012/035/149
A006/A101

AUTHORS: Kolomitskiy, P.M., Milov, A.I., Pnnomarev, V.D.

TITLE: On the solubility of titanium dioxide in potassium fluoro-titanate
              melts

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 12, 1961, 17, abstract
              12G124 ("Izv. AN KazSSR, Ser. metallurgii, obogashcheniya i ogneupo-
              rov", 1961, no. 1 (10), 26 - 32; Kaz. summary)

TEXT: The authors studied maximum solubility of TiO_2 in a pure K-fluoro-
titanate melt, and in a melt with NaCl admixture. Visual and thermographical
methods were used to establish maximum solubility of TiO_2 in K_2TiF_6 which was
found to be equal to 7 weight %. The data obtained were employed to plot a con-
stitution diagram of K_2TiF_6-TiO_2 up to a content of 12.5% TiO_2. With the aid of
petrographical analysis the authors established the solubility of TiO_2 up to 5%
in melts of eutectic composition: NaCl - K_2TiF_6. There are 7 references.

                                              G. Svodtseva

[Abstracter's note: Complete translation]

Card 1/1

S/137/61/000/012/034/149
A006/A101

AUTHORS: Ruban, N.N., Ponomarev, V.D., Vinogradova, K.A.

TITLE: On the solubility of aluminum chloride in titanium tetrachloride

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 12, 1961, 17, abstract
12G123 (Izv. AN KazSSR, Ser. metallurgii, obogashcheniya i ogneupo-
rov, 1961, no. 1 (10), 33 - 40, Kaz. summary)

TEXT: The authors studied solubility of $AlCl_3$ in $TiCl_4$ at 70, 90, 105,
120 and $127^\circ C$. It was established that at a rise of the temperature from 70 to
$127^\circ C$, $AlCl_3$ solubility in 100 g $TiCl_4$ increased from 0.24 to 7.24 g. The depend-
ence of the logarithm of $AlCl_3$ concentration in $TiCl_4$ (in mole parts) on the in-
verse value of absolute temperature, is expressed by a straight line.

G. Svodtseva

[Abstracter's note: Complete translation]

Card 1/1

S/137/61/000/012/036/149
A006/A101

AUTHORS: Machkasov, Ye.I., Ponomarev, V.D., Spivak, Yu. M.

TITLE: Investigating the granulation process of high-titanium slag

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 12, 1961, 17-18, abstract
             12G125 (Izv. AN KazSSR, Ser. metallurgii, obogashcheniya i ogneupo-
             rov, 1961, no. 1 (10), 41 - 47, Kaz. summary)

TEXT: The authors studied the granulation process of high-titanium slag
under large-scale laboratory conditions. The charge intended for granulation
consisted of a mixture of Ti-slag and petroleum coke of -0.25 mm fraction. Sul-
fite alkali of 1.12 specific weight was employed as a binding solution. It was
established that granulation of an unpreheated Ti-containing charge with 33%
petroleum coke in a granulator with 500-mm cup diameter and 40 mm rim height, is
expedient under the following conditions: rpm of the cup - 40; tilting angle of
the cup - 30°; amount of binder - 18-20% at 3:1 ratio of sulfite-alkali and
water. Under these conditions maximum yield of granules of -5+1 mm fraction (60-

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Investigating the granulation process ...

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A006/A101

70%) is obtained, as well as their highest strength (310 - 610 g/mm^2). Holding the granules at 800°C for 1 hour is sufficient for the evaporation of moisture and organic components.

G. Svodtseva

[Abstracter's note: Complete translation]

Card 2/2

PUTILIN, Yu.M.; MELIKHOV, V.D.; PONOMAREV, V.D.

     X-ray diffraction study of the system potassium fluotitanate -
sodium chloride - titanium dioxide. Izv.AN Kazakh.SSR.Ser.met.,
obog.i ogneup. no.2:18-26 '61.   (MIRA 14:8)
      (X rays--Diffraction)   (Systems (Chemistry))

PONOMAREV, V.D.; MALYSHEV, M.F.; YASHUNIN, P.Ya.; KAPRALOV, P.V.

Leaching of bauxites by high-modulus alkali solutions. Izv.AN
Kazakh.SSR.Ser.met., obog.i ogneup. no.2:27-32 '61.   (MIRA 14:8)
                (Leaching) (Bauxite)

PONOMAREV, V.D.; ROMANOV, L.G.

Interaction of sodium-calcium hydrosilicate with high-modulus aluminate solutions. Izv.AN Kazakh.SSR.Ser.met., obog.i ogneup.
no.2:43-52 '61.
(MIRA 14:8)
(Sodium calcium silicate)   (Aluminates)

AUTHORS: Machkasov, Ye. I., Ponomarev, V. D.

TITLE: On the problem of obtaining titanium from the slimes of the alumina
             industry

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 17, abstract 1G134
             ("Metallurg. i khim. prom-st' Kazakhstana. Nauchno-tekhn. sb.",
             1961, no. 2(12), 61-67)

TEXT: The author studied the possibility of obtaining $TiCl_4$ from the
slimes of the alumina industry. It was attempted to chlorinate the plain slime
mixture with a reducer, to chlorinate in two stages (with and without a reducer),
and to chlorinate the granulated mixture of slime and reducer. For obtaining
$TiCl_4$ it is recommended to use the method of chlorinating granulated charge in a
fluidized bed. Thus, by chlorinating granulated slime 92% of the Ti was extracted
in 30 - 45 min; by chlorinating a plain mixture for 180 min, 53% of the Ti
was extracted.

[Abstracter's note: Complete translation]   G. Svodtseva

Card 1/1

STROITELEV, I.A.; PONOMAREV, V.D.

Precipitation of sulfides and metallic copper from converter slags
during crystallization. Izv. AN Kazakh. SSR. Ser. met., obog. i
ogneup. no.3:11-19 '61.   (MIRA 15:1)
        (Slag) (Nonferrous metal industries--By-products)

GOL'DMAN, M.M.; PONOMAREV, V.D.

Composition of solid precipitates during the processing of red mud
for the hydrochemical production of alumina. Izv. AN Kazakh. SSR.
Ser. met., obog. i ogneup. no.3:40-49 '61.   (MIRA 15:1)
                    (Aluminum--Metallurgy) (Hydrometallurgy)

GOL'DMAN, M.M.; MEDVEDKOV, B.Ye.; NI, L.P.; PONOMAREV, V.D.

Regeneration of sodium oxide from sodium calcium hydrosilicates.
Izv.AN Kazakh.SSR.Ser.met., obog.i ogneup. no.2:53-63 '61.

(MIRA 14:8)

(Sodium calcium silicate—Analysis)

GOL'DMAN, M.M.; PONOMAREV, V.D.

Role of potassium in the leaching of nepheline rocks by the hydro-
chemical method. Izv. AN Kazakh. SSR. Ser. met., obog. i ogneup.
no.3:50-58 '61. (MIRA 15:1)

(Leaching) (Nepheline)

ROMANOV, L.G.; PONOMAREV, V.D.

Effect of protective additions on the stability of aluminate solu-
tions in the presence of solid phases. Izv. AN Kazakh. SSR. Ser.
met., obog. i ogneup. no.3:59-65 '61.   (MIRA 15:1)
                        (Aluminates) (Hydrometallurgy)

PUTILIN, Yu.M.; PONOMAREV, V.D.; MILOV, A.I.

Investigating the viscosity of melts in the system K_2TiF_6 - NaCl -
TiO_2.   Izv. AN Kazakh. SSR. Ser. met., obog. i ogneup.   no.3:66-72
'61.   (MIRA 15:1)

(Liquid metals) (Viscosimetry)

S/137/62/000/005/010/150
A006/A101

AUTHORS: Nikiforov, Yu. A., Ponomarev, V. D.

TITLE: On the interaction of calcium oxide with sulfurous anhydride at elevated temperatures

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 16, abstract 5A89 ("Izv. AN KazSSR, Ser. metallurgii, obogashch. i ogneuporov", 1961, no. 3 (12), 27-34, Kaz. summary)

TEXT: For the purpose of studying processes of metal extraction from gases which are formed during the pyrometallurgical processing of sulfide Cu and Mo concentrates, the authors investigated interaction of CaO at 100 - 500°C with sulfurous anhydride, at 0.5 - 2.0% concentration of the latter in gas. Initial materials were CaO of -2+1 mm size, and gas obtained by mixing purified argon with SO_2. The experiments were made with 2g-batches placed in a tubular furnace on the grid of a quartz reaction tube. A beginning interaction of CaO with SO_2 was noted at 100°C. An intensive increase of the process rate was observed only at > 400°C. SO_2 contained in the gas increases the degree of CaO transformation. The necessary duration of the contact is 5 - 15 minutes under laboratory

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S/137/62/000/006/068/163
A052/A101

AUTHORS: Kim, G. V., Abdeyev, M. A., Ponomarev, V. D.

TITLE: The pressure of Zn and Cd vapors over their alloys

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 6, 1962, 29, abstract 6Ω223
              ("Tr. Altaysk. gornometallurg. n.-i. in-ta", v. 11, 1961, 48 - 55)

TEXT: Thermodynamic constants of components of Cd-Zn system are deter-
mined for three alloys at 500, 600 and 700°C. The degree of separation of Cd
and Zn at 500 and 600°C is higher than at 700°C; therefore for vacuum distilla-
tion 600°C should be taken. Equations for the dependence of partial pressures of
Cd and Zn vapors on the temperature are given for the alloys concerned. There
are 9 references.

A. Tseydler

[Abstracter's note: Complete translation]

Card 1/1

GETSKIN, L.S.; YATSUK, V.V.; PONOMAREV, V.D.

Thermodynamic analysis of the interaction of heavy nonferrous
metal sulfides with sulfuric acid. Izv. vys. ucheb. zav.;
tsvet. met. 4 no.4:53-56 '61.   (MIRA 14:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tsvetnykh
metallov i Kazakhskiy politekhnicheskiy institut. Rekomendovana
kafedroy metallurgii legkikh i redkikh metallov Kazakhskogo
politekhnicheskogo instituta.
          (Sulfides—Metallurgy) (Thermal analysis)